

Please type a plus sign (+) inside this box →

+

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031  
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 1 of 3

### Complete if Known

Application Number	09/617,858
Filing Date	JULY 17, 2000
First Named Inventor	MARIE B. O'REGAN ET AL.
Group Art Unit	2811
Examiner Name	UNKNOWN
Attorney Docket Number	UA0026 US NA

### U.S. PATENT DOCUMENTS

Examiner Initials *	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
WSL		5,780,174		TOKITO ET AL.	07/14/98	
		5,747,930		UTSUGI	05/05/98	
		5,723,873		YANG	03/03/98	
		5,626,795		SMITH ET AL.	05/06/97	
		5,616,986		JACOBSEN ET AL.	04/01/97	
		5,512,654		HOLMES ET AL.	04/30/96	
		5,469,018		JACOBSEN	11/21/95	
		5,408,109		HEEGER ET AL.	04/18/95	
		5,317,169		NAKANO ET AL.	05/31/94	
		5,247,190		FRIEND ET AL.	09/21/93	
		5,151,629		VANSLYKE	09/29/92	
		5,059,862		VANSLYKE ET AL.	10/22/91	
		5,047,687		VANSLYKE	10/10/91	

### FOREIGN PATENT DOCUMENTS

Examiner Initials *	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sub>0</sub>
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)				
WSL		WO	98/10621		Cambridge Display Technology	03/12/98		
WSL		WO	99/59370		FED Corporation	11/18/99		
WSL		EP	0668620		AT&T Corp.	08/23/95		

Examiner  
Signature

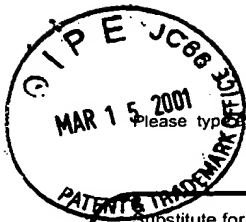
Date  
Considered

9/28/01

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.



Please type plus sign (+) inside this box → ☐

PTO/SB/08B (08-00)

Approved for use through 10/31/2002. OMB 0651-0031  
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449A/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 2 of 3

### Complete if Known

Application Number	09/617,858
Filing Date	JULY 17, 2000
First Named Inventor	MARIE B. O'REGAN ET AL.
Group Art Unit	2811
Examiner Name	UNKNOWN
Attorney Docket Number	UA0026 US NA

### OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
W/L		DODABALAPUR, A. ET AL.; Microcavity effects in organic semiconductors; Appl. Phys. Lett.; May 9, 1994; 2486-2488; 64(19); American Institute of Physics	
		FISHER, T. A. ET AL.; Electroluminescence from a conjugated polymer microcavity structure, Appl. Phys. Lett.; September 4, 1995; 1355-1357; 67(10); American Institute of Physics	
		TESSLER, N. ET AL.; Lasing from conjugated-polymer microcavities; Nature; August 22, 1996; 695-697, Vol. 382	
		WITTMANN, HERMAN F.; Microcavity Effect in a Single-Layer Polymer Light-Emitting Diode; Adv. Mater.; 1995; 541-544; VCH Verlagsgesellschaft mbH, Weinheim	
		TAKADA, NORIYUKI ET AL.; Control of emission characteristics in organic thin-film electroluminescent diodes using an optical-microcavity structure; Appl. Phys. Lett.; October 11, 1993; 2032-2034; 63(15); American Institute of Physics	
		TSUTSUI, TETSUO ET AL.; Sharply directed emission in organic electroluminescent diodes with an optical-microcavity structure; Appl. Phys. Lett.; October 10, 1994; 1868-1870; 65(15); American Institute of Physics	
		CACIALLI, F. ET AL.; Light-Emitting Conjugated Polymers in Optical Microcavities; Synthetic Metals; 1997; 533-534; 84; Elsevier Science S.A.	
		PARKER, I.D. ET AL.; Carrier tunneling and device characteristics in polymer light-emitting diodes; J. Appl. Phys.; February 1, 1994; 1656-1666; 75(3); American Institute of Physics	
		BURROUGHES, J.H. ET AL.; Light-emitting diodes based on conjugated polymers, Nature; October 11, 1990; 539-541; Vol. 347	
		BRAUN, D. ET AL.; Visible light emission from semiconducting polymer diodes; Appl. Phys. Lett.; May 6, 1991; 1982-1894; 58(18); American Institute of Physics	
		GUSTAFSSON, G. ET AL.; Flexible light-emitting diodes made from soluble conducting polymers; Nature; June 11, 1992; 477-479; Vol 357	

Examiner  
Signature

Date  
Considered

9/28/01

\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.



Please type a plus sign (+) inside this box →



PTO/SB/08B (08-00)

Approved for use through 10/31/2002. OMB 0651-0031  
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449A/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 3 of 3

### Complete if Known

Application Number	09/617,858
Filing Date	JULY 17, 2000
First Named Inventor	MARIE B. O'REGAN ET AL.
Group Art Unit	2811
Examiner Name	UNKNOWN
Attorney Docket Number	UA0026 US NA

### OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
WSL		YANG, Y. ET AL.; Polyaniline as a transparent electrode for polymer light-emitting diodes: Lower operating voltage and higher efficiency; Appl. Phys. Lett.; March 7, 1994; 1245-1247; 64(10); American Institute of Physics	
		YANG Y. ET AL.; Enhanced performance of polymer light-emitting diodes using high-surface area polyaniline network electrodes; J. Appl. Phys.; January 15, 1995; 694-698; 77(2); American Institute of Physics	
		KIDO, J. ET AL.; Single-layer white light-emitting organic electroluminescent devices based on dye-dispersed poly(N-vinylcarbazole); Appl. Phys. Lett.; October 16, 1995; 2281-2283; 67(16); American Institute of Physics	
		SCOTT, J.C. ET AL.; Degradation and failure of MEH-PPV light-emitting diodes; J. Appl. Phys.; March 1, 1996; 2745-2751; 79(5); American Institute of Physics	
		PARKER, I.D. ET AL.; Fabrication of polymer light-emitting diodes using doped silicon electrodes; Appl. Phys. Lett.; April 4, 1994; 1774-1776; 64(14); American Institute of Physics	
		DIAZ-GARCIA, MARIA A. ET AL.; "Plastic" lasers: Comparison of gain narrowing with a soluble semiconducting polymer in waveguides and microcavities; Appl. Phys. Lett.; June 16, 1997; 70(24); American Institute of Physics	
		KOWALSKY, WOLFGANG ET AL.; Improved Lifetime and Efficiency of Organic Light Emitting Diodes for Applications in Displays; SPIE Conference on Light-Emitting Diodes: Research, Manufacturing and Applications III; January 1999; 103-114; San Jose, California	
		JORDAN, R.H. ET AL.; Efficiency enhancement of microcavity organic light emitting diodes; Appl. Phys. Lett.; September 30, 1996; 1997-1999; 69(14); American Institute of Physics	
		SCOTT, J.C. ET AL.; Hole limited recombination in polymer light-emitting diodes; Appl. Phys. Lett.; March 15, 1999; 1510-1512; 74(11); American Institute of Physics	

Examiner  
Signature

Date  
Considered

9/28/01

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.